Dinion2X

LTC0498 | LTC0630

BOSCH

en Installation Manual

Table of Contents

1 Safety

1.1 Safety precautions

DANGER!
High risk: The lighting flash and arrowhead within the triangle is a warning sign alerting you of "Dangerous Voltage" inside the product that can cause an electrical shock, bodily injury, or death.

WARNING!
Medium risk: The exclamation mark within the triangle sign alerts the user to important instructions accompanying the unit.

CAUTION!
Low risk: Alerts the user to the risk of damage to the unit.

1.2 Important safety instructions

Read, follow, and retain for future reference all of the following safety instructions. Follow all warnings on the unit and in the operating instructions before operating the unit.

1. Clean only with a dry cloth. Do not use liquid cleaners or aerosol cleaners.
2. Do not install unit near any heat sources such as radiators, heaters, stoves, or other equipment (including amplifiers) that produce heat.
3. Never spill liquid of any kind on the unit.
4. Take precautions to protect the unit from power and lightning surges.
5. Adjust only those controls specified in the operating instructions.
6. Operate the unit only from the type of power source indicated on the label.
7. Unless qualified, do not attempt to service a damaged unit yourself. Refer all servicing to qualified service personnel.

8. Use only replacement parts specified by the manufacturer.
9. Install in accordance with the manufacturer's instructions in accordance with applicable local codes. Use only attachments/accessories specified by the manufacturer. Equipment change or modification could void the user's guarantee or authorization agreement.

WARNING!

Power disconnect for high voltage versions: A unit has power supplied whenever the power cord is inserted into the power source. The power cord plug is the main power disconnect for the unit. For pluggable equipment, install the socket outlet near the equipment so it is easily accessible.

WARNING!

All-pole power switch: Incorporate an all-pole power switch, with a contact separation of at least 3 mm in each pole, into the electrical installation of the building.

CAUTION!

Fuse rating: The branch circuit protection must be secured with a maximum fuse rating of 16 A. This must be in accordance with *NEC800 (CEC Section 60)*.

CAUTION!

The Low Voltage power supply unit must comply with EN/UL 60950. The power supply must be a SELV-LPS unit or a SELV - Class 2 unit (Safety Extra Low Voltage - Limited Power Source).

1.3 System ground/Safety ground

System (video) ground is indicated by the symbol ⏚.

Safety (power) ground is indicated by the symbol ⏚.

The system ground is only used to comply with safety standards or installation practices in certain countries. Bosch does **not**

recommend connecting system ground to safety ground unless it is explicitly required. However, if the system ground and safety ground are connected and grounding loops are causing interference in the video signal, use an isolation transformer (available separately from Bosch).

CAUTION!
Connecting System ground to Safety ground may result in ground loops that can disrupt the CCTV system.

1.4 FCC information

This equipment has been tested and found to comply with the limits for a **Class B** digital device, pursuant to *part 15* of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a **residential installation**. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

Note
Any change or modification of the equipment not expressly approved by Bosch could void the user's authority to operate the equipment.

	**Disposal -** Your Bosch product was developed and manufactured with high-quality material and components that can be recycled and reused. This symbol means that electronic and electrical appliances, which have reached the end of their working life, must be collected and disposed of separately from household waste material. Separate collecting systems are usually in place for disused electronic and electrical products. Please dispose of these units at an environmentally compatible recycling facility, per *European Directive 2002/96/EC*

For additional information or to speak to a representative, please contact the Bosch Security Systems location nearest to you or visit our web site at *www.boschsecurity.com*

2 Introduction

2.1 Features

The Dinion2X Day/Night camera is a high-performance, smart, surveillance color camera. It incorporates advanced (20-bit) digital signal processing and a wide dynamic range CCD sensor for outstanding picture performance.
The Dinion2X camera is easy to install and ready to use, and offers the best solution for demanding scene conditions.
Features include:

- 1/3-inch CCD sensor with wide dynamic range (LTC0498)
- 1/2-inch CCD sensor (LTC0630)
- True Day/Night performance with switchable IR filter
- 540 TVL resolution
- Dynamic engine with Smart BLC
- Privacy zones
- Autoblack
- Bilinx (bi-directional coaxial communication)
- Wide operating temperature range
  (-20 to +55 °C / -4 to +131 °F)
- Lens wizard
- Lens autodetect
- Six pre-programmed operation modes
- Adaptive dynamic noise reduction
- Genlock including subcarrier locking
- Multiple language on-screen display
- Built-in test pattern generator

3 Installation

3.1 Unpacking

Unpack carefully and handle the equipment with care.
The packaging contains:

- Dinion2X Day/Night camera
- CCD protection cap (mounted on camera)
- Protection cap on sync. input
- Plastic bag containing:
  - Alarm I/O connector
- Power connector
- Spare lens connector (male)
- Important safety instructions
- Quick install instructions
- CD ROM
  - Installation Instructions
  - Adobe Acrobat Reader

If equipment has been damaged during shipment, repack it in the original packaging and notify the shipping agent or supplier.

WARNING!
Installation should only be performed by qualified service personnel in accordance with the National Electrical Code or applicable local codes.

CAUTION!
The camera module is a sensitive device and must be handled carefully.

4 Connection and mounting

CAUTION!
Before proceeding, disconnect the power from the power supply cable. Ensure that the voltage of the unit matches the voltage and type of the power supply being used.

4.1 Power connection

4.1.1 Low voltage cameras

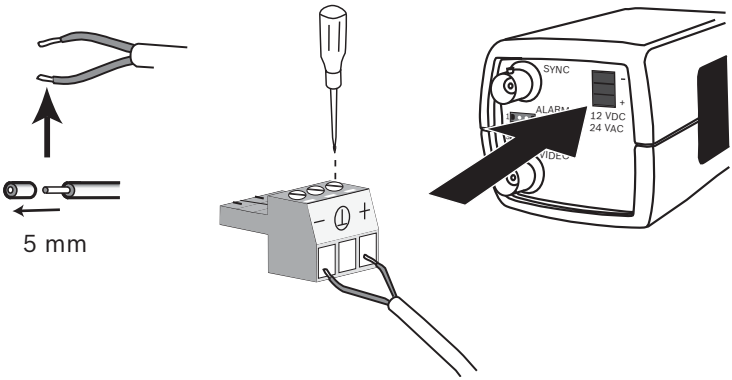


Figure 4.1 Low voltage power connection

Connect power from a 24 VAC or 12 VDC class 2 power supply as follows:

- Use AWG16 to 22 stranded wire or AWG16 to 26 solid wire; cut back 5 mm (0.2 in) of insulation.
- Remove the 3-pole connector from the camera body.
- Loosen the screws and insert the wires.

  Note

  The central connection for System (video) ground is optional. Connecting System ground to Safety ground may result in ground loops that can disrupt the CCTV system.

- Tighten the screws and reconnect the 3-pole connector to the camera.

Note

For a **DC supply** the polarity is important. Incorrect polarity does not damage the camera but it will not switch on.
For an **AC supply** maintain a consistent wiring polarity in multiple camera systems to help avoid potential camera video rolling.

4.1.2 High voltage cameras

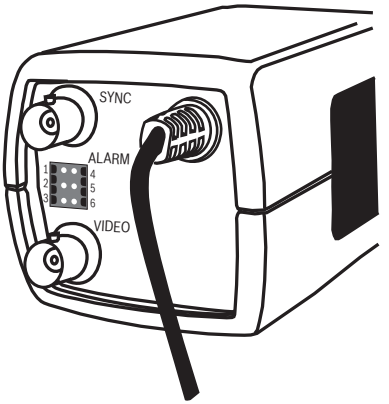


Figure 4.2 High voltage power connection

Connect the power cable of a high voltage camera to either a 230 VAC or a 120 VAC power supply outlet depending on the version.

4.2 Video connections

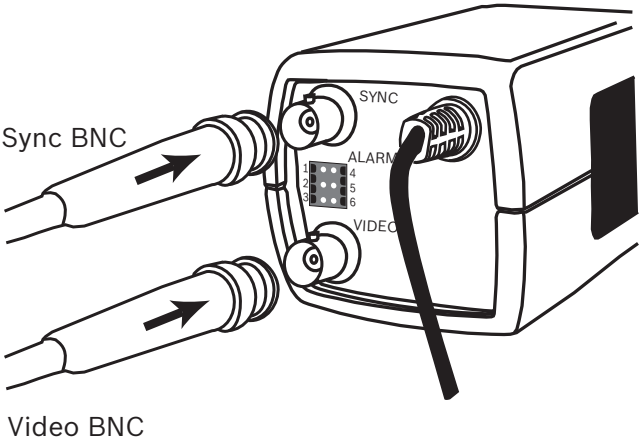


Figure 4.3 BNC connectors

4.2.1 Output Video signal

The camera has a BNC connector to connect the video coax cable with a male BNC connector. A UTP adapter (VDA-455UTP) is available as an optional accessory to allow a UTP video cable to be connected to the BNC connector.

4.2.2 Synchronization signal

The camera has a BNC connector to accept a coax cable with a male BNC connector for synchronization.

4.3 Alarm and relay connector

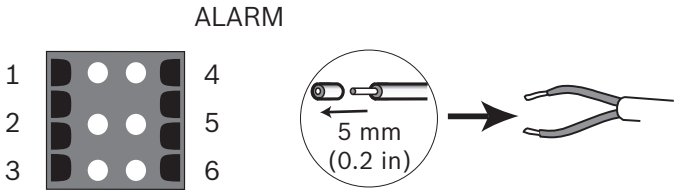


Figure 4.4 Alarm and relay connector pins

Pin	Alarm socket
1	Alarm in ground
2	not used
3	Relay out contact 1
4	Alarm in 1
5	not used
6	Relay out contact 2

- Max. wire diameter AWG 22-28 for both stranded and solid; cut back 5 mm (0.2 in) of insulation.
- Alarm output relay switching capability: Max voltage 30VAC or +40 VDC. Max 0.5 A continuous, 10 VA.
- Alarm in: TTL logic, +5V nominal, +40 VDC max, DC coupled with 22 kOhm pull-up to +3.3 V.
- Alarm in: configurable as active low or active high.
- Max. 42 V allowed between camera ground and each of the relay pins.

4.4 Lens mounting

The camera accepts CS-mount lenses. C-mount lenses can be mounted using the lens adapter ring. DC-iris lenses are recommended for the best picture performance. The camera automatically detects the type of lens used and optimizes performance accordingly. A spare male lens connector is provided.

CAUTION!

To avoid damaging the CCD sensor when using a C-mount lens, make sure the supplied lens adapter ring is mounted onto the camera before mounting the lens.
Lenses weighing more than 0.5 kg (1.1lbs) must be separately supported.

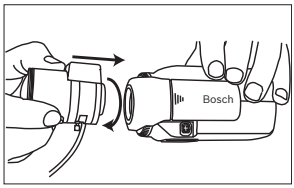


Figure 4.5 Mounting a lens

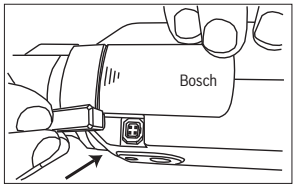
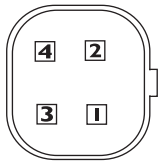


Figure 4.6 Lens connector

Pin	Video iris lens	DC iris lens
1	Supply (11.5V ±0.5, 50mA max.)	Damp -
2	Not used	Damp +
3	Video signal 1Vpp 1kOhm	Drive +
4	Ground	Drive -



Note

If a short circuit is detected on the lens connector, the on-screen display (OSD) failure message LENS SHORT CIRCUIT is shown. The lens circuit is automatically disabled to avoid internal damage. Remove the lens connector and check the pin connections.

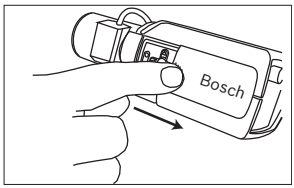
4.5 Back focus adjustment

To optimize picture sharpness in both bright and low-level lighting, adjust the back focus. Use the camera's unique Lens Wizard. This ensures that the object of interest always remains in focus, even when focusing at the maximum lens iris opening (for example, at night).

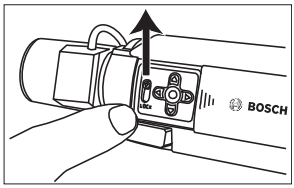
- When back focusing varifocal lenses, adjust to obtain a sharp picture in both wide-angle and tele positions for both far and near focus.
- When back focusing zoom lenses, ensure the object of interest remains in focus throughout the entire zoom range of the lens.

To adjust back focus:

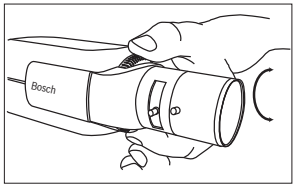
1. Open the slide door panel at the side of the camera.



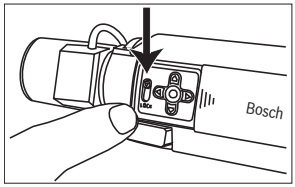
2. Unlock the back focus locking button.



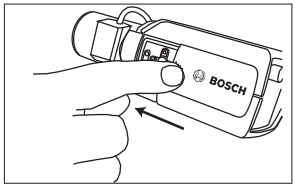
3. Press and hold the center key for more than 1 second until the **Install** menu appears.
4. Select **Len Wizard** and move cursor to the **Set Back Focus Now** item.
5. Turn the back focus adjustment as required.



6. Lock the back focus locking button.



7. Press and hold the center key for more than 1 second until all the menus disappear.
8. Close the side door panel.



4.6 Mounting the camera

The camera can be mounted either from the top or from the bottom (1/4" 20 UNC thread). The bottom mounting is isolated from ground to prevent ground loops.

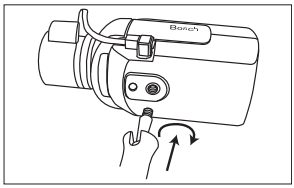


Figure 4.7 Mounting a camera

CAUTION!
Do not point the camera/lens into direct sunlight as this may damage the sensors.

Note:
A wide range of accessories is available for indoor and outdoor mounting.

5 Configuration

The camera normally provides an optimal picture without the need for further adjustments. Advanced set-up options are available in a menu system for getting the best results under special circumstances.
The camera implements your changes immediately so that before and after settings are easily compared.

5.1 Menus

5.1.1 Top level menus

There are two upper level menus: a **Main** menu and an **Install** menu. The menus have functions that can be selected directly or submenus for more detailed set-up.

– To access the **Main** menu, press the menu/select button (center) for less than 1 second. The **Main** menu appears on the monitor. The **Main** menu allows you to select and set-up the picture enhancement functions. If you are not happy with your changes, you can always recall the default values for the mode.
– The camera also has an **Install** menu in which the installation settings can be set. To access the **Install** menu, press the menu/select button (center) for longer than 2 seconds.

5.1.2 Menu navigation

Five keys, located behind the side door panel, are used for navigating through menu system.

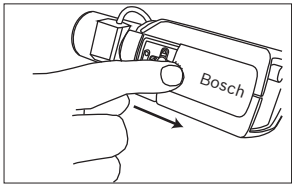


Figure 5.1 Side panel door

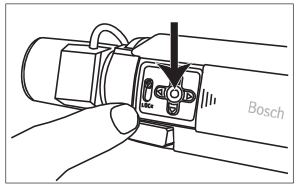


Figure 5.2 Menu/select key

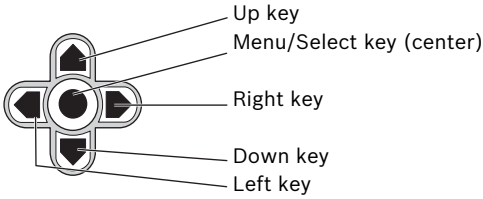


Figure 5.3 Navigation

- Use the up or down keys to scroll through a menu.
- Use the left or right keys to move through options or to set parameters.
- When in a menu, quickly double-press the menu/select key to restore the selected item to its factory default.
- To close all menus at once hold down the menu/select key until the menu display disappears or continually select the **Exit** item.

Some menus automatically close after about two minutes; other menus have to be closed manually.

5.2 Pre-defined modes

There are six pre-defined modes with settings to make configuration easier. You can select one of the six pre-defined modes in the Install/Mode submenu. The modes are defined as follows;

1. **24-hour**
   Default installation mode to provide stable pictures over a 24-hour period. These settings are optimized for out-of-the-box installation.
2. **Traffic**
   Capture high-speed objects using default shutter in variable lighting conditions.
3. **Low light**
   Provide extra enhancement, such as AGC and SensUp to make usable pictures in low-light conditions.
4. **Smart BLC**
   Settings optimized to capture details in high contrast and extremely bright-dark conditions.
5. **Low noise**
   Enhancements are set to reduce picture noise. Useful for conditional refresh DVR and IP storage systems because reducing noise reduces the amount of storage required.
6. **Analog systems**
   Use this mode if the camera is connected to a purely analog system (e.g. matrix switcher with VCR) or to a CRT monitor. Useful mode for evaluating/demonstrating the camera when it is directly connected to a CRT monitor.

5.3 Day/Night switching

The camera is equipped with a motorized IR filter. The mechanical IR filter can be removed in low-light or IR illuminated applications by software configuration settings.
If **Auto** switching mode is selected, the camera automatically switches the filter depending on the observed light level. The switching level is programmable. In **Auto** switching mode the camera prioritizes motion (the camera gives sharp images without motion blur as long as the light level permits) or color (the camera gives color pictures as long as the light level permits). The camera recognizes IR illuminated scenes to prevent unwanted switching to color mode.
There are four different methods of controlling the IR filter:

- via an alarm input,
- via Bilinx communication,
- automatically, based on the observed light levels, or
- as part of the programmable mode profile.

5.4 Camera control communication (Bilinx)

This camera is equipped with a coaxial communications transceiver (also referred to as Bilinx). In combination with VP-CFGSFT, the camera setting can be changed from any point along the coaxial cable. All menus can be accessed remotely giving full control of the camera. With this method of communication it is also possible to disable the local keys on the camera.
To avoid loss of communication on an installed camera, the **Communication On/Off** selection is not available while using remote control. This function can only be accessed with the camera buttons. Bilinx communications can only be disabled using the buttons on the camera.

Disabled camera buttons
When the Bilinx communications link is active, the buttons on the camera are disabled.

5.5 Main menu structure

Item	Selection	Description
Mode	Submenu	Sets up operating modes 1 to 6
ALC	Submenu	Video level control
Shutter/AGC	Submenu	Shutter and automatic gain control
Day/Night	Submenu	Day/Night for color/mono operation
Enhance / Dynamic Engine	Submenu	Picture enhancement and performance
Color	Submenu	White balance and color rendition
VMD	Submenu	Video motion detection

5.5.1 Mode submenu

Item	Selection	Description
Mode	1 to 6	Selects operating mode.
Mode ID	Alphanumeric	Mode name (11 characters maximum)
Copy active mode	Available mode numbers	Copies current mode settings to the mode number selected.
Default mode	Submenu	Restores camera to the factory default settings.
EXIT		Returns to main menu.

5.5.2 ALC submenu

Item	Selection	Description
ALC level	-15 to +15	Selects the range within which the ALC will operate. A positive value is more useful for low-light conditions; a negative value is more useful for very bright conditions. Some ALC adjustment may improve scene content when Smart/BLC is enabled.
Peak/average	-15 to +15	Adjusts the balance between peak and average video control. A negative value gives more priority to average light levels; a positive value gives more priority to peak light levels. Video iris lens: choose an average level for best results (peak settings may cause oscillations).
ALC speed	Slow, medium, fast	Adjusts the speed of the video level control loop. For most scenes it should remain at the default value.
DVR/IP Encoder	On, Off	On - The camera output is optimized for connection to a DVR or IP encoder to compensate for compression methods. Off - The camera output is optimized for connection to an analog system (matrix switcher or monitor.
EXIT		Returns to main menu.

5.5.3 Shutter/AGC submenu

Item	Selection	Description
Shutter	AES, FL, Fixed	AES (auto-shutter) - the camera automatically sets the optimum shutter speed. FL - flickerless mode avoids interference from light sources (recommended for video-iris or DC-iris lenses only). FIXED - allows a user defined shutter speed.
Default (AES) shutter or Fixed shutter	1/50 (PAL), 1/60 (NTSC) 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/5000, 1/10K	In AES mode, the camera tries to maintain the selected shutter speed as long as the light level of the scene is high enough. In Fixed mode, selects shutter speed.
Actual shutter		Displays the actual shutter value from the camera to help compare lighting levels and optimum shutter speed during set-up.
Gain control	On, Fixed	On - the camera automatically sets the gain to the lowest possible value needed to maintain a good picture. Fixed - sets Fixed AGC value.
Maximum AGC or Fixed AGC	0 to 30 dB	Selects the maximum value the gain can have during AGC operation. Selects the gain setting for Fixed gain operation (0 is no gain).
Actual AGC		Displays the actual AGC value from the camera to help compare gain level with lighting levels and picture performance.

Item	Selection	Description
SensUp Dynamic	Off, 2x, 3x, ..., 10x	Selects the factor by which the sensitivity of the camera is increased. When active, some noise or spots may appear in the picture. This is normal camera behavior. It may also cause motion blur on moving objects.
EXIT		Returns to main menu.

5.5.4 Day/Night submenu

Item	Selection	Description
Day/Night	Auto, Color, Monochrome	Auto - the camera switches the IR cut-off filter on and off depending on the scene illumination level. Monochrome - the IR cut-off filter is removed, giving full IR sensitivity. Color - the camera always produces a color signal regardless of light levels.
Switch level	-15 to +15	Sets the video level in Auto mode at which the camera switches to monochrome operation. A low (negative) value means that the camera switches to monochrome at a lower light level. A high (positive) value means that the camera switches to monochrome at a higher light level.

Item	Selection	Description
Priority	Motion, Color	In AUTO mode: Color - the camera gives a color image as long as the light level permits. Motion - the camera avoids motion blur as long as the light level permits (it switches to monochrome earlier than it would with Color priority).
IR contrast	Enhanced, Normal	Enhanced - the camera optimizes contrast in applications with high IR illumination levels. Select this mode for IR (730 to 940 nm) light sources and for scenes with grass and green foliage. Normal - the camera optimizes contrast in mono applications with visible light illumination.
Color burst (mono)	On, Off	Off - the color burst in the video signal is switched Off in monochrome mode. On - the color burst remains active even in monochrome mode (required by some DVRs and IP encoders).
EXIT		Returns to main menu.

5.5.5 Enhance / Dynamic Engine submenu

Item	Selection	Description
Dynamic Engine	Off, XF-DYN, 2X-DYN*, SmartBLC * 2X-DYN is only available in LTC0498 models.	Off: - turns off all automatic scene detail and enhancements (only recommendedfor testing). XF-DYN: - extra internal processing is enabled for low-light applications (traffic, etc.). 2X-DYN: - 2X-Dynamic adds dual sensor exposure to the XF-DYN features. In harsh lighting conditions pixels from each exposure are mixed to give a more detailed image (use 2X-DYN when SmartBLC is not required). SmartBLC: - BLC window and weighting factor are automatically defined. Camera dynamically adjusts these for changing light conditions. Includes all the benefits of 2X-DYN.
Autoblack	On, Off	Autoblack On automatically increases the visibility of details even when scene contrast is less than full-range due to mist, fog, etc.
Black level	-50 to +50	Adjusts the black offset level. A low (negative) value makes the level darker. A high (positive) value makes the level lighter and may bring out more detail in the darker areas.
Sharpness	-15 to +15	Adjusts the sharpness of the picture. 0 corresponds to the default position. A low (negative) value makes the picture less sharp. Increasing sharpness brings out more detail. Extra sharpness can enhance the details of license plates, facial features and the edges of certain surfaces.

Item	Selection	Description
Dynamic noise reduction	Auto, Off	In AUTO mode the camera automatically reduces the noise in the picture. This may cause some motion blur on exceptionally fast moving objects immediately in front of the camera. This can be corrected by widening the field of view or selecting Off.
Peak White Invert	On, Off	Use Peak White Invert to reduce glare from the CRT/LCD display. Use in ANPR/LPR applications to reduce headlight glare. (Test on-site to ensure that it does benefit the application and is not distracting for operators of the security system.)
EXIT		Returns to main menu.

5.5.6 Color submenu

Item	Selection	Description
White balance	ATW, AWBhold, Manual	ATW - Auto tracking white balance allows the camera to constantly adjust for optimal color reproduction. AWBhold - Puts the ATW on hold and saves the color settings. Manual - the Red, Green, and Blue gain can be manually set to a desired position.
Speed	Fast, Medium, Slow	Adjusts the speed of the white balance control loop.
Red gain	-5 to +5 -50 to +50	ATW and AWBhold - adjusts the Red gain to optimize the white point. Manual - adjusts the Red gain.

Item	Selection	Description
Blue gain	-5 to +5 -50 to +50	ATW and AWBhold - adjusts the B gain to optimize the white point. Manual - adjusts the Blue gain.
Green gain	-50 to +50	Manual - adjusts the Green gain.
Saturation	-15 to +5	Adjusts the color saturation. -15 gives a monochrome image.
EXIT		Returns to main menu.

5.5.7 VMD submenu

Item	Selection	Description
VMD	Off, Silent, OSD	Off - Video Motion Detection (VMD) is off. Silent - video motion generates silent alarm. OSD - video motion generates on-screen text message alarm.
VMD area	Submenu	Select to enter the area set-up menu to define the detection area.
Motion indicator		Indicates the peak of measured motion in the selected area. Press either the right, left or center navigation button to reset.
VMD sensitivity		Sets the sensitivity for motion to the desired level. The longer the white bar, the more motion is required to acitvate the VMD alarm. Motion above this level activates alarm.
OSD alarm text	Alphanumeric	Text for on-screen display alarm (16 characters maximum).
EXIT		Returns to main menu.

Selecting an area for VMD masking

To set-up an area for VMD masking, access the area menu by selecting the **VMD Area** option from the VMD menu. Upon entering the **Area** menu, the current area is displayed with the upper left corner flashing. The flashing corner of the image can be moved with the Up, Down, Left, Right arrow keys. Pressing the Select key moves the flashing cursor to the opposite corner, which can now be moved. Pressing Select again freezes the area and exits the area menu.
There is one programmable VMD area.

Note:

When VMD is enabled, normal light fluctuations or environmental factors can contribute to false-positive alarms. Because of this, it is recommended that you do **not** connect the VMD-triggered alarm output of the camera to a monitored alarm system as the false-positive alarms may be considered a nuisance.

5.6 Install menu structure

Item	Selection	Description
Language	Submenu	Select on-screen display (OSD) language
Lens Wizard	Submenu	Select to optimize the camera-lens combination backfocus point.
Synchroniza-tion	Submenu	Sets synchronization parameters
Alarm I/O	Submenu	Program the alarm input and output functionality.
Connections	Submenu	Connection parameters
Test signals	Submenu	Test patterns and texts
Camera ID	Submenu	Select to access ID submenu
Privacy masking	Submenu	Sets up a masking area
Default ALL	Submenu	Returns all settings for all modes to factory defaults

5.6.1 Language submenu

Item	Selection	Description
Language	English Spanish French German Portuguese Polish Italian Dutch Russian	Displays the menus on the OSD in the chosen language.
EXIT		Returns to Install menu.

5.6.2 Lens Wizard submenu

Item	Selection	Description
Lens type	Auto, Manual, DC-iris, Video	Auto: - automatically selects the type of lens. Manual, DC-iris, Video modes: select the matching lens type to force the camera to the correct lens mode.
Detected		Shows the type of lens detected when auto lens detection is used.
Set Backfocus now		Select to fully open the iris. Follow the instructions below for setting the backfocus for your particular lens type. After focusing the object of interest remains in focus under bright and low light conditions.

Item	Selection	Description
Set LVL		Only for video-iris lenses. Adjust the level control on the lens to center the level detector indicator (see below).
EXIT		Returns to Install menu.

Adjustment procedure DC-iris Lens

1. Unlock the back focus locking button.
2. Access the **Lens Wizard** menu.
3. **Set Back Focus Now** is highlighted in the menu.
4. Turn the back focus adjustment as required.
5. Lock the back focus locking button.
6. Exit the menu.

Adjustment procedure Manual-iris Lens

1. Unlock the back focus locking button.
2. Adjust the lens to the maximum lens opening.
3. Turn the back focus adjustment as required.
4. Lock the back focus locking button.
5. Adjust lens opening to suit scene.

Adjustment procedure Video-iris Lens

1. Unlock the back focus locking button.
2. Access the **Lens Wizard** menu.
3. **Set Back Focus Now** is highlighted in the menu.
4. Turn the back focus adjustment as required.
5. Lock the back focus locking button.
6. Select **Set LVL** in the menu; the **Level** bar appears.
7. Point the camera at the scene it will be mostly viewing.
8. Adjust the level potentiometer located on the lens until the **Level** bar is in the central position.
9. Exit the menu.

5.6.3 Synchronization submenu

Item	Selection	Description
Synchroniza-tion	Internal Line lock HV lock, Genlock,	Internal - for free running camera operation. Line lock - to lock to the AC power supply HV lock - locks the camera to the sync signal supplied to the SYNC connector. Genlock - locks the camera's subcarrier to the signal supplied to the SYNC connector.
Horizontal phase	-25 . . 0 . . +25	Adjusts the horizontal phase offset.
Subphase	0, 2 . . . 358	Adjusts the subcarrier phase.
EXIT		Returns to Install menu.

5.6.4 Alarm I/O submenu

Item	Selection	Description
Alarm input	None, high, low	Select none to disable the alarm input. Select active-high or active-low for the alarm input connector.
Alarm action	None, Mode 1 to 6, Mono	Selects the operating mode of the camera when the alarm input is active.

Item	Selection	Description
Alarm output	VMD, External device, Night mode active, Filter toggle	VMD: - output relay closes on VMD alarms. External device: - make the output relay available to remote communication devices. Night mode active: - output relay closes when camera is in monochrome mode. Filter toggle: - output relay closes just before the IR filter starts moving and opens when video level has stabilized (2 to 3 seconds)
EXIT		Returns to Install menu.

5.6.5 Connections submenu

Item	Selection	Description
Sync. input	High Z, 75 ohm	Select 75 ohm if the external sync input is not terminated elsewhere.
Notch filter	On, Off	Switches notch filter on or off. The notch filter can remove a Moiré pattern or color artifacts caused by closely spaced vertical lines or objects (e.g. vertical security bars over windows).
Bilinx Comms.	On, Off	If Off, Bilinx communications is disabled.
Camera buttons	Enable, disable	Enable or disable the camera buttons from working.
Cable compensation	Off, Default, RG59, RG6, Coax12	Cable compensation is used to avoid the need for amplifiers in long distance coaxial connections up to 1000 m (3000 ft). For optimum results select the coaxial cable type used or, if unknown, select default.

Item	Selection	Description
Compensation level	0,1,2 . . .+15	Sets the level of cable compensation
EXIT		Returns to Install menu.

5.6.6 Test signal submenu

Item	Selection	Description
Show camera ID	Off, On	Select On to overlay the camera ID on the video test signal.
Test pattern	Color bars 100%, Grayscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane	Select the desired test pattern to help installation and fault-finding.
EXIT		Returns to Install menu.

5.6.7 Camera ID submenu

Item	Selection	Description
Camera ID		Enter a 17-character camera name. Use Left/Right to change position in the string; use up/down to select character. Use Select to exit.
Display ID pos.	Off, Top left, Top right, Bottom left, Bottom right	Select the screen position of the camera ID.
Camera ID border	On, Off	Displays a grey border behind the camera ID to make it easier to read.
MAC address		Shows MAC address (factory set, cannot be changed).
Ticker bars	On, Off	The ticker bar moves continuously to show that the image is live and not frozen or played back.
Display mode ID	Off, Top left, Top right, Bottom left, Bottom right	Camera mode is displayed on the screen in the selected position.
EXIT		Returns to Install menu.

5.6.8 Privacy masking submenu

Item	Selection	Description
Pattern	Black, Grey, White, Noise	Selects pattern for all masks.
Mask	1, 2, 3, 4	Four different areas can be masked.

Item	Selection	Description
Active	On, Off	Turns each of the four masks on or off.
Window	Submenu	Select to open a window in which to define the mask area.

Selecting an area for privacy masking

To set-up an area for privacy masking, access the area menu by selecting the **Area** option from the privacy masking menu. Upon entering the **Area** menu, the current area is displayed with the upper left corner flashing. The flashing corner of the image can be moved with the Up, Down, Left, Right arrow keys. Pressing the Select key moves the flashing cursor to the opposite corner, which can now be moved. Pressing Select again freezes the area and exits the area menu.

There are four programmable privacy mask areas.

5.6.9 Defaults submenu

Item	Selection	Description
Restore All	No, Yes	Restores all settings of the six modes to their default (factory) values. Select YES then press the Menu/Select button to restore all values. When completed the message RESTORED! is shown.

6 Troubleshooting

6.1 Resolving problems

The following table is intended to help you identify the causes of malfunctions and correct them when possible.

Malfunction	Possible causes	Solution
No image transmission to remote location.	Defective camera.	Connect a local monitor to the camera and check the camera function.
	Faulty cable connections.	Check all cables, plugs, contacts and connections.
	Incorrect cable connections.	Ensure that Video and Sync connections are not reversed. When using DC power ensure that polarity is correct.
No connection established, no image transmission.	The unit's configuration.	Check all configuration parameters.
	Faulty installation.	Check all cables, plugs, contacts and connections.

6.2 Customer service

If you cannot resolve a fault, please contact your supplier or system integrator, or contact Bosch Security Systems Customer Service directly.

The Installer should write down all information regarding the unit so that it can be referenced for warranty or repair. The version numbers of the firmware and other status information can be seen when the unit starts or by opening the **Install**

menu. Note down this information and the information found on the camera label before contacting customer service.

7 Maintenance

7.1 Repairs

CAUTION!

Never open the casing of the camera. The unit does not contain any user serviceable parts. Ensure that all maintenance or repair work is performed only by qualified personnel (electrical engineering or network technology specialists). If in doubt, contact your dealer's technical service center.

7.1.1 Transfer and disposal

The camera should only be passed-on together with this installation guide. The unit contains environmentally hazardous materials that must be disposed of according to law. Defective or superfluous devices and parts should be disposed of professionally or taken to your local collection point for hazardous materials.

8 Technical Data

8.1 Specifications

1/2-inch CCD version

Type number	LTC0630/11	LTC0630/21	LTC0630/51	LTC0630/61
Standard	PAL	NTSC	PAL	NTSC
Active pixels	752 x 582	768 x 494	752 x 582	768 x 494
Rated supply voltage	+12 VDC ±10% 24 VAC (50 Hz) ±10%	+12 VDC ±10% 24 VAC (60 Hz) ±10%	230 VAC 50 Hz	120 VAC 60 Hz
Minimum illumination	0.0991 lux, 30IRE 0.0391 lux (in monochrome mode), 30IRE			

1/3-inch CCD version

Type number	LTC0498/11	LTC0498/21	LTC0498/51	LTC0498/61
Standard	PAL	NTSC	PAL	NTSC
Active pixels	752 x 582	768 x 494	752 x 582	768 x 494
Rated supply voltage	+12 VDC ±10% 24 VAC (50 Hz) ±10%	+12 VDC ±10% 24 VAC (60 Hz) ±10%	230 VAC 50 Hz	120 VAC 60 Hz
Minimum illumination	<0.15 lux, 30IRE <0.06 lux (in monochrome mode), 30IRE			

All versions

Imager	Interline CCD
Resolution	540 TVL
SNR	> 50 dB
Video output	1 Vpp, 75 Ohm
Synchroniza-tion	Internal, Line Lock, HV-lock, or Genlock selectable
Shutter	AES (1/60 [1/50] to 1/10000) customer selectable AES (1/60 [1/50] to 1/15000) automatic flickerless, fixed selectable
Day/Night	Color, Mono, Auto
Sens Up	Adjustable from Off to 10x
AGC	AGC On or Off (0 - 30dB) selectable
Dynamic engine	XF-Dynamic, 2X-Dynamic*, SmartBLC * 2X-DYN is only available in LTC0498 models.
DNR	Automatic noise filtering On/Off selectable
Sharpness	Sharpness enhancement level selectable
White Balance	ATW, AWBhold and manual (2500 to 10000K)
Color saturation	Adjustable from monochrome (0%) to 133% color
Lens mount	CS compatible, c-mount compatible with supplied adapter ring
ALC lens	Video or DC iris auto detect
Test pattern generator	Color bars 100%, Greyscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane
Video Motion Detection (VMD)	One area, fully programmable
Privacy Masking	Four independent areas, fully programmable; black, white, grey, noise
Communication	Two-way Bilinx (bi-directional)
Languages (OSD)	English, Spanish, French, German, Portuguese, Polish, Italian, Dutch, Russian

Modes	6 programmable (preset) modes: 24-hour, Traffic, Low-light, SmartBLC, Low noise, Analogue systems
Peak White Invert	Suppresses highlights in scenes
Misc.	Notch filter, Actual AGC, Actual shutter, IR contrast
Power consumption	<5 W
Dimensions (H x W L)	58 x 66 x 122 mm (2.28 x 2.60 x 4.80 in) without lens
Weight	450 g (0.99 lb) without lens
Tripod mount	Bottom (isolated) and top 1/4" 20 UNC
Operating temperature	-20 °C to +55 °C (-4 °F to +131 °F)
Controls	OSD with softkey operation

8.1.1 Dimensions

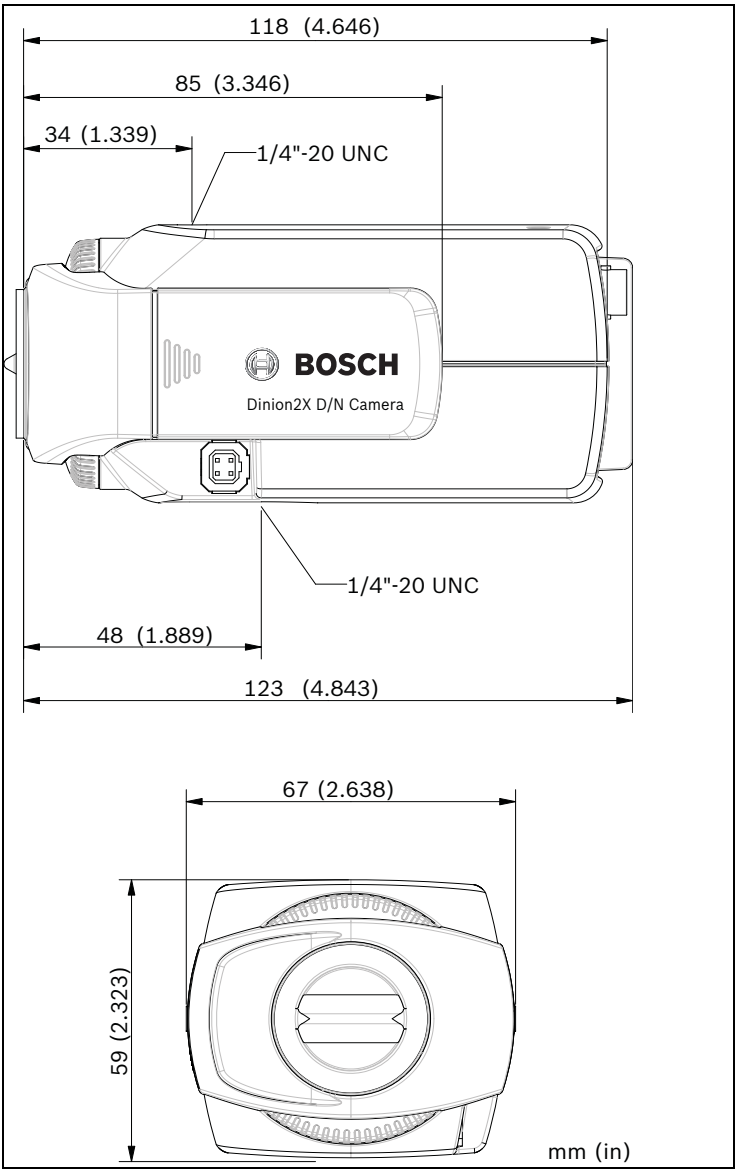


Figure 8.1 Dimensions

8.1.2 Accessories

- Indoor mounting brackets
- Outdoor environmental housings
- Lenses (varifocal, fixed and motorized zoom)
- Bilinx communication interface box and software

Contact a Bosch representative in your area for the latest available accessories or visit our website at *www.boschsecurity.com*

Glossary

A

AES

Automatic Electronic Shutter (see Electronic iris).

Aperture

The size of the opening in the lens iris that controls the amount of light reaching the CCD Sensor. The larger the F-number, the less light reaches the sensor. An increase of one F-stop, halves the amount of light reaching the sensor.

AutoBlack

A technique of boosting the video signal level to produce a full amplitude video signal, even when the scene contrast is less than full range (glare, fog, mist, etc.).

Automatic Gain Control (AGC)

The electronics that regulate the gain or amplification of the video signal. AGC is used in low-light conditions with the iris fully open.

AutoIris

The lens iris opening is automatically adjusted to allow the correct illumination of the camera sensor. With a direct drive (DC) iris lens, the camera controls the aperture size. A video iris lens has the control circuit in the lens itself.

Auto Level Control (ALC)

The adjustment of the video level to give the desired brightness level. This can be done electronically or by means of an iris control.

Auto White Balance (AWB)

A feature that allows a color camera to automatically adjust its

output color to give a natural color, independent of the lighting used.

B

Backfocus

The distance between the image plane and the rear portion of the lens. Correct backfocus adjustment ensures that the camera remains in focus under various conditions.

Bilinx

A communications protocol that allows remote control, configuration, and updates to be performed over the video cable (Coax or Passive UTP).

Bilinx address

The address may be set locally using the Bilinx Configuration Tool for Imaging Devices (CTFID).

Back Light Compensation (BLC)

Selectively amplifies parts of the image to compensate for large contrast differences when only a portion of the image is brightly lit (e.g. a person in a sunlit doorway). See also Smart BLC.

C

Charged Coupled Device (CCD)

A CCD is a type of solid state image sensor used in CCTV cameras. The sensor converts light energy into electrical signals.

CCD Format

Indicates the size of the camera sensor used. In general, the larger the sensor, the more sensitive the camera and the better the image quality. The format is quoted in inches, for example 1/3 or 1/2 inch.

Color Temperature

A measure of the relative color of illumination. Generally used

to specify the color balance correction of a camera to achieve a natural color image.

D

Day/Night (infrared sensitive)

A camera that has normal color operation in situations where there is sufficient illumination (day conditions), but where the sensitivity can be increased when there is little light available (night conditions). This is achieved by removing the infrared cut filter required for good color rendition. The sensitivity can be further enhanced by integrating a number of fields to improve the signal-to-noise ratio of the camera (this may introduce motion blur).

Default Shutter

A feature allowing the shutter speed to be set to a fast speed to eliminate motion blur and provide a detailed and clear image of fast-moving objects while there is sufficient light. When light levels fall and other adjustments have been exhausted, the shutter speed reverts to the standard setting to maintain sensitivity.

Depth of Field

The distance from the nearest to the furthermost point that appears in focus. The smaller the aperture, the greater the depth of field.

Dynamic Noise Reduction (DNR)

A digital video processing technique that measures the noise (image artifacts) in the picture and automatically reduces it.

E

Electronic iris

Electronic iris (or AES - Automatic Electronic Shutter) adjusts the camera shutter speed to compensate for lighting changes. In some cases this can eliminate the need for an autoiris lens.

F

F-Number

The standard measure of the lens aperture, which is the iris diameter, divided by the focal length of the lens. The lower the maximum aperture (F-Number or F-Stop), the more light that passes through the lens.

F-Stop *See* F-Number

Field of View

The measure of the visible area within the camera's field of view. The larger the focal length, the smaller the field of view. The smaller the focal length, the wider the field of view.

Focal Length

The distance from the optical center of the lens to the image of an object located at an infinite distance from the lens. Long focal lengths give a small field of view (e.g. telephoto effect), while short focal lengths give a wide angle view.

I

Infrared Illumination

Electromagnetic radiation (light) with a longer wavelength than is visible to the human eye. IR illumination is prominent at dusk and dawn and in incandescent lamps. IR illuminators come in the form of lamps with the appropriate filters, LEDs, or lasers. CCD sensors are less sensitive to IR than visible light, but IR can significantly increase the total illumination level, leading to a much better image at low light levels.

IRE (Institute of Radio Engineers)

A measurement of video amplitude that divides the area from the bottom of sync to peak white level into 140 equal units - 140 IRE equals 1V peak-to-peak. The range of active video is 100 IRE.

L

Lens wizard

The lens wizard is used when setting the backfocus. It opens the iris fully while maintaining the correct video level using AES.

Lux

The international (SI) unit of measurement of the intensity of light. It is equal to the illumination of a surface one meter away from a single candle.

O

OSD

On-screen Display: Menus are shown on the display monitor.

P

Privacy Masking

The ability to mask out a specific area to prevent it from being viewed in order to comply with privacy laws and particular site requirements.

PWIE

Peak White Inverse Engine: White highlights are automatically turned black to reduce bright spots. Useful in traffic and car park applications.

R

Region of Interest

A specific area within a field of view, used by the motion detection algorithm to identify motion.

Resolution

The measure of the fine detail that can be seen in an image. For analog systems this is typically measured in horizontal Television Lines or TVL. The higher the TVL rating, the higher the resolution.

S

Saturation

The amplitude of the chrominance signal affecting the vividness of the color.

Sensitivity

A measure of the amount of light required to provide a standard video signal. Sensitivity values are stated in lux (*see* Lux).

SensUp (sensitivity up)

Increases camera sensitivity by increasing the integration time on the CCD (lowering shutter time from 1/50 to 1/5 s). This is accomplished by integrating the signal from a number of consecutive video fields to reduce signal noise.

Signal-to-noise ratio

The ratio between a useful video signal and unwanted noise measured in dB.

Smart BLC (Back Light Compensation)

Smart back-light compensation allows the camera to automatically compensate for bright areas of a high contrast scene without having to define a window or area.

U

UTP (Unshielded Twisted Pair)

A variant of twisted pair cabling, UTP cable is not surrounded by any shielding. The wires in a twisted pair cable are twisted around each other to minimize interference from the other twisted pairs in the cable. UTP is the primary wire type for telephone usage and the most commonly used type of networking cable.

V

VMD Video Motion Detection: An algorithm for motion detection in which the camera compares the current image with a reference image and counts the number of pixels that have changed between the two images. An alarm is generated when the number of pixel changes exceeds a user-configured threshold.

W

WDR (Wide Dynamic Range)

A cameras dynamic range is the difference between the minimum and maximum acceptable signal levels. A scene with both very low and very high illumination levels requires a camera with a wide dynamic range to handle it correctly and produce a useful image.

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